Quality Assurance Surveillance Plan (QASP)

Radiation and Acceleration Physics Research Support Services

12/12/2012

Version 1.0

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Radiation and Acceleration Physics Research Support Services

1 Vision

Develop theoretical, numerical and experimental techniques to solve basic plasma physics problems and assess potential applications for novel radiation sources and particle beam accelerators.

1.1 Mission

Naval Research Lab (NRL) Beam Physics Branch (Code 6790) program encompasses the integration of theoretical/computational and experimental research in the areas of advanced radiation and accelerator physics, space plasma physics, ultra high field laser physics and high frequency microwave research for processing ceramic materials. Providers will work with NRLs engineers and scientists in performing theoretical/computational and experimental research in evaluating coherent radiation sources, ultra high field laser-plasma interactions, and advanced (laser-plasma driven) accelerators.
In addition to computational analysis of experimental data, providers will perform operation and maintenance duties for NRL's laser and microwave facilities including high power, coherent microwave sources and electron accelerators, a Table Terawatt (T3) laser, computing stations and a shared scientific computing center.

2 Purpose

This Quality Assurance Surveillance Plan (QASP) is a government-developed document used to determine if the contractor's performance meets the performance standards contained in the contract. The QASP establishes procedures on how this assessment/inspection process will be conducted. It provides the detailed process for a continuous oversight process:
What will be monitored
How monitoring will take place
Who will be conduct the monitoring
How monitoring efforts and results will be documented
The contractor is responsible for implementing and delivering performance that meets contract standards using its Quality Control Plan. The QASP provides the structure for the government's surveillance of the contractor's performance to assure that it meets contract standards. It is the government's responsibility to be objective, fair and consistent in evaluating contractor performance.
The QASP is not part of the contract nor is it intended to duplicate the contractor's quality control plan. This QASP is a living document. Flexibility in the QASP is required

to allow for an increase or decrease in the level of surveillance necessary based on contractor performance.
The government may provide a copy of the QASP to the contractor to facilitate open communication. In addition, the QASP should recognize that unforeseen or uncontrollable circumstances might occur that are outside the control of the contractor. Bottom line, the QASP should ensure early identification and resolution of performance issues to minimize impact on mission performance.

3 Authority

Authority for issuance of this QASP is provided under Part 46 of the Federal Acquisition Regulation, Inspection of Services clauses, which provides for inspection, acceptance and documentation of the service called for in the contract or order. This acceptance is to be executed by the contracting officer or a duly authorized representative.

4 Roles and Responsibilities

The following personnel shall oversee and coordinate surveillance activities.

5.1 Contracting Officer (KO)

The KO provides primary program oversight, nominates the COR, and ensures the COR is trained before performing any COR duties. The KO ensures performance of all necessary actions for effective contracting, compliance with the contract terms, and is responsible for safeguard the interests of the United States in the contractual relationship. The KO also ensures that the Contractor receives impartial, fair, and equitable treatment under this contract. The KO is responsible for documenting the final assessment of the Contractor's performance in the Government's past performance tracking system.
Assigned KO: *To be provided at time of award <enter name>
Organization or Agency: Naval Research Laboratory Code *<enter code>
Telephone: *<enter number>
Email: *<enter address>

5.2 Contracting Officer's Representative (COR)

The QASP is the primary tool for documenting contractor performance. The COR uses the QASP to conduct the oversight/surveillance process. The COR keeps a Quality Assurance file that accurately documents the contractor's actual performance. The purpose is to ensure that the contractor meets the performance standards contained in the contract. The COR is required to provide an annual performance assessment to the KO which will be used in documenting past performance.
The COR is responsible for providing continuous technical oversight of the contractor's performance and supports the COR's performance assessment activities, they are not empowered to make any contractual commitments or any contract changes on the government's behalf. The COR is responsible for reporting early identification of performance problems to the KO. While the COR may serve as a direct conduit to provide Government guidance and feedback to the Contractor on technical matters, they are not empowered to make any contractual commitments or any contract changes on the government's behalf.

Assigned COR:*To be provided at time of award <enter name>
Organization or Agency: Naval Research Laboratory Code *<enter code>
Telephone:* <enter number>
Email:* <enter address>

5.4 Contractor Representatives

The following employees of the contractor serve as the contractor's Task Manager for this contract. (Complete this section after the contract award)
Program Manager - <upon award, enter name>
Telephone: <upon award, enter number>
Email: <upon award, enter address>

6 Performance Requirements and Method of Surveillance

This section describes the special requirements for this effort. The following sub-sections provide details of various considerations on this effort.

6.1 Contract Surveillance

The goal of the QASP is to ensure that contractor performance is effectively monitored and documented. The COR's contribution is their professional, non-adversarial relationships with the KO, PM and the contractor, which enables positive, open and timely communications. The foundation of this relationship is built upon objective, fair, and consistent COR evaluations of contractor performance against contract requirements. The COR uses the methods contained in this QASP to ensure the contractor is in compliance with contract requirements. The COR function is responsible for a wide range of surveillance requirements that effectively measure and evaluate the contractor's performance. Additionally, this QASP is based on the premise that the contractor, not the government, is responsible for management and QC/QA actions to successfully meet the terms of the contract.

6.2 Surveillance Matrix

The Surveillance Matrix (Attachment 1) is the list of performance objectives and standards that must be performed by the contractor. This matrix details the method of surveillance the COR will use to validate and inspect these performance elements. Inspection of each element will be documented in the COR file.
Performance objectives define the desired outcomes. Performance Standards define the level of service required under the contract to successfully meet the performance objective. The inspection methodology defines how, when, and what will be assessed in measuring performance. The Government performs surveillance, using this QASP, to determine the quality of the contractor's performance as it relates to the performance element standards. The Performance Rating Standards (PRS) listed below provide the foundation of the COR's inspection checklist ratings.

6.3 Corrective Action Report (CAR)

If Contractor performance in any area covered by the QASP is determined to be unsatisfactory the COR will issue a Corrective Action Report (CAR) in the format provided in Table xx, below for contractor action and remediation.

In evaluating the quality of contractor's performance, the following performance ratings may be used.

Performance Rating	Criteria
Excellent / Outstanding	Performance meets contractual requirements and exceeds many to the government's benefits. The contractual performance of the element or sub-element being assessed was accomplished with no problems and contractor actions were highly effective.
Very Good	Performance meets contractual requirements and exceeds some to the government benefits. The contractual performance was accomplished with few minor problems for which corrective actions taken by the contractor were effective.
Good	Performance meets contractual requirements. The contractual performance contains some minor problems for which corrective actions taken by the contractor were satisfactory.
Marginal	Performance does not meet some contractual requirements. The contractual performance reflects a serious problem for which the contractor has not yet identified corrective actions. The contractor's proposed actions appear marginally effective or were not fully implemented.
Unsatisfactory	Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance contains serious problem(s) for which the contractor's corrective actions appear or were ineffective.

Appendix 1 - Surveillance Matrix

Statements	Standards/AQLs	Inspections	Ratings
3.1 The Contractor shall conduct research on atmospheric propagation of intense laser pulses. <u>Deliverables:</u> A001 Monthly Progress and Status Report A004 Contract Summary Technical Report	**a)** Timely **AQL:** 5 days after last day of month in which work was accomplished **b)** Comprehensive **AQL:** Include: hours expended on tasks, resources assigned to tasks, meeting/reviews attended, problems or issues encountered **c)** Timely **AQL:** 60 days after the end of an annual period of performance. **d)** Comprehensive **AQL:** Addresses key issues associated with modeling atmospheric propagation of intense laser beams.	**What:** Monthly Progress and Status Report **How:** Assess accuracy of reported hours of support and sub-tasks assigned. Assess timeliness and adequacy of contractor supplied resources to success of research efforts. Assess contractor participation in project reviews and scientific meetings/seminars if assigned. Review problems and issues and take action accordingly. Report delivered monthly. **Who:** COR PI **Standard(s):** a, b - - - - - - - - **What:** Contract Summary Technical Report **How:** Review contents of annual Contract Summary Technical Report for completeness. **Who:** COR PI **Standard(s):** c, d	
3.1.1 The Contractor shall perform theoretical research to develop analytical framework of numerical	**a)** Timely **AQL:** 30 days after completion of development of a specific framework **b)** Comprehensive	**What:** Report on analytical framework of a specific numerical model **How:** Evaluate technical content of	

Statements	Standards/AQLs	Inspections	Ratings
models for atmospheric propagation of intense laser beams. <u>Deliverables:</u> A002 Studies Final Report	**AQL:** Addresses key issues associated the analytical framework of the numerical model developed	report provided after completion of development of framework for a specific model. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.1.2 The Contractor shall conduct experimental research on simulation model code design, model execution, and interpretation of experimental data for propagation of intense laser beams in the atmosphere. <u>Deliverables:</u> A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of a specific experiment **b)** Comprehensive **AQL:** Addresses key issues associated with a specific experiment	**What:** Report on design, implementation, and interpretation of data for a specific experiment **How:** Evaluate technical content of report provided after completion of experiment. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.1.3 The Contractor shall conduct research into and provide recommendations on potential applications for ultra-short pulse lasers and CW fiber lasers. <u>Deliverables:</u> A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of analysis **b)** Comprehensive **AQL:** Provide detailed assessment of potential applications.	**What:** Report on potential applications of ultra-short pulse and CW fiber lasers. **How:** Evaluate technical content of the report on potential applications. **Who:** COR PI **Standard(s):** Inspection applies to all standards	

Statements	Standards/AQLs	Inspections	Ratings
3.2 The Contractor shall conduct research on high-gradient laser driven acceleration processes. <u>Deliverables:</u> A001 Monthly Progress and Status Report A004 Contract Summary Technical Report	**a)** Timely **AQL:** 5 days after last day of month in which work was accomplished **b)** Comprehensive **AQL:** Include: hours expended on tasks, resources assigned to tasks, meeting/reviews attended, problems or issues encountered **c)** Timely **AQL:** 60 days after the end of an annual period of performance. **d)** Comprehensive **AQL:** Addresses key issues associated with conduct of simulations/experiments with high gradient laser-driven accelerators	**What:** Monthly Progress and Status Report **How:** Review Monthly Progress and Status Report. Assess accuracy of reported hours of support and sub-tasks assigned. Assess timeliness and adequacy of contractor supplied resources to success of research efforts. Assess contractor participation in project reviews and scientific meetings/seminars if assigned. Review problems and issues and take action accordingly. Report delivered monthly. **Who:** COR PI **Standard(s):** a, b - - - - - - - **What:** Contract Summary Technical Report **How:** Review contents of annual Contract Summary Technical Report for completeness. **Who:** COR PI **Standard(s):** c, d	
3.2.1 The Contractor shall perform theoretical research to develop analytical framework of numerical models for treating high gradient laser-driven processes in LWFAs and	**a)** Timely **AQL:** 30 days after completion of development of a specific framework **b)** Comprehensive **AQL:** Addresses key issues associated the analytical framework	**What:** Report on the analytical model framework of a specific numerical model. **How:** Evaluate technical content of report provided after completion of development of the model.	

Statements	Standards/AQLs	Inspections	Ratings
other optical injectors. <u>Deliverables:</u> A002 Studies Final Report	of the numerical model developed	**Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.2.2 The Contractor shall design and implement numerical simulation code based on the results of task 3.2.1 above for use in LWFA and other optical injector experiments. <u>Deliverables:</u> A003 Software Version Description Document (VDD)	**a)** Timely **AQL:** 30 days after completion of verification and validation of simulation code **b)** Comprehensive **AQL:** Meets 100% of the requirements listed in the VDD Guide data description provided in the DD1423 Contract Requirements Data List (CDRL) attached.	**What:** Source code as described in the VDD. **How:** Review VDD to ensure that software documentation requirements have been met. Of specific interest is that all source code is adequately commented so that Government can maintain the code after delivery by the Contractor. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.2.3 The Contractor shall conduct experimental research on simulation model code design, model execution, and interpretation of experimental data for LWFA and capillary plasma channel guiding experiments. <u>Deliverables:</u> A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of a specific experiment **b)** Comprehensive **AQL:** Addresses key issues and findings associated with a specific experiment.	**What:** Report on design and operation and acquisition and interpretation of data on a specific experiment. **How:** Evaluate technical content of report provided after completion of experiment. **Who:** COR PI **Standard(s):** Inspection applies to all standards	

Statements	Standards/AQLs	Inspections	Ratings
3.3 The Contractor shall conduct research on fundamental plasma and optical physics processes. <u>Deliverables:</u> A001 Monthly Progress and Status Report A004 Contract Summary Technical Report	**a)** Timely **AQL:** 5 days after last day of month in which work was accomplished **b)** Comprehensive **AQL:** Include: hours expended on tasks, resources assigned to tasks, meeting/reviews attended, problems or issues encountered **c)** Timely **AQL:** 60 days after the end of an annual period of performance. **d)** Comprehensive **AQL:** Addresses key issues associated with modeling fundamental plasma and optical processes.	**What:** Monthly Progress and Status Report **How:** Review Monthly Progress and Status Report. Assess accuracy of reported hours of support and sub-tasks assigned. Assess timeliness and adequacy of contractor supplied resources to success of research efforts. Assess contractor participation in project reviews and scientific meetings/seminars if assigned. Review problems and issues and take action accordingly. Report delivered monthly. **Who:** COR PI **Standard(s):** a, b - - - - - - - **What:** Contract Summary Technical Report **How:** Review contents of annual Contract Summary Technical Report for completeness. **Who:** COR PI **Standard(s):** c, d	
3.3.1 The Contractor shall develop improved analytical and numerical methods for modeling the fundamental processes described in the paragraph 3.3 above.	**a)** Timely **AQL:** 30 days after completion of development of specific analytical or numerical methods **b)** Comprehensive **AQL:** Addresses specific analytical	**What:** Technical report on use of improved analytical and numerical methods in modeling fundamental processes. **How:** Evaluate technical content of report provided after completion of	

Statements	Standards/AQLs	Inspections	Ratings
<u>Deliverables:</u> A002 Studies Final Report	or numerical method improvements for use in modeling of fundamental plasma and optical physical processes.	development. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.3.2 The Contractor shall modify improved numerical models validated by task 3.3.1 experiments for incorporation into large scale simulation codes being developed by NRL Beam Physics Branch. <u>Deliverables:</u> A002 Studies Final Report A003 Software Version Description Document (VDD)	**a)** Timely **AQL:** 30 days after validation of a specific large scale model update. **b)** Comprehensive **AQL:** Addresses key issues associated with incorporating improved analytical and numerical models of fundamental plasma and optical processes into NRL large scale simulation codes. **c)** Comprehensive **AQL:** Meets 100% of the requirements listed in the VDD Guide data description provided in the DD1423 Contract Requirements Data List (CDRL) attached.	**What:** Technical report on incorporating improvements into NRL large scale simulations. **How:** Evaluate technical content of findings on incorporating the new models into NRLs large scale models. **Who:** COR PI **Standard(s):** a, b - - - - - - - **What:** Source code as described in the software VDD. **How:** Review VDD to ensure that software documentation requirements have been met. Of specific interest is that all source code is adequately commented so that Government can maintain the code after delivery by the Contractor. **Who:** COR PI **Standard(s):** a, c	

Statements	Standards/AQLs	Inspections	Ratings
3.4 The Contractor shall conduct research on electron beam driven radiation sources. <u>Deliverables:</u> A001 Monthly Progress and Status Report A004 Contract Summary Technical Report	**a)** Timely **AQL:** 5 days after last day of month in which work was accomplished **b)** Comprehensive **AQL:** Include: hours expended on tasks, resources assigned to tasks, meeting/reviews attended, problems or issues encountered **c)** Timely **AQL:** 60 days after the end of an annual period of performance. **d)** Comprehensive **AQL:** Addresses key issues associated with modeling electron beam driven radiation sources..	**What:** Monthly Progress and Status Report **How:** Review Monthly Progress and Status Report. Assess accuracy of reported hours of support and sub-tasks assigned. Assess timeliness and adequacy of contractor supplied resources to success of research efforts. Assess contractor participation in project reviews and scientific meetings/seminars if assigned. Review problems and issues and take action accordingly. Report delivered monthly. **Who:** COR PI **Standard(s):** a, b - - - - - - - **What:** Contract Summary Technical Report **How:** Review contents of annual Contract Summary Technical Report for completeness. **Who:** COR PI **Standard(s):** c, d	
3.4.1 The Contractor shall develop analytical and numerical models for evaluating FEL electron beam dynamics and radiation generation.	**a)** Timely **AQL:** 30 days after completion of development of a specific model **b)** Comprehensive **AQL:** Addresses analytical capability of a specific model in simulating FEL	**What:** Report on analytical and numerical model capabilities. **How:** Evaluate technical content of report provided after completion of development of an improved model. **Who:** COR	

Statements	Standards/AQLs	Inspections	Ratings
Deliverables: A002 Studies Final Report A003 Software Version Description Document (VDD)	operations **c)** Comprehensive **AQL:** Meets 100% of the requirements listed in the VDD Guide data description provided in the DD1423 Contract Requirements Data List (CDRL) attached.	PI **Standard(s):** a, b - - - - - - - **What:** Source code as described in the VDD. **How:** Review VDD to ensure that software documentation requirements have been met. Of specific interest is that all source code is adequately commented so that Government can maintain the code after delivery by the Contractor. **Who:** COR PI **Standard(s):** a, c	
3.4.2 The Contractor shall conduct experimental research on simulation model code design, model execution, and interpretation of experimental data for the NRL laser synchrotron x-ray and ?ray source experiments.. Deliverables: A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of a specific experiment **b)** Comprehensive **AQL:** Addresses key issues and findings associated with a specific experiment.	**What:** Technical report of theoretical, numerical, and data analysis of experiments **How:** Evaluate timeliness and content of the technical report. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.4.3 The Contractor shall evaluate use of electron beam sources for potential dual use applications. Deliverables: A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of a specific evaluation **b)** Comprehensive **AQL:** Addresses key findings associated with an assessment of dual use applications for electron beam sources.	**What:** Dual Use Applications Report **How:** Evaluate technical content of the report on potential applications. **Who:** COR PI **Standard(s):** Inspection applies to all standards	

Statements	Standards/AQLs	Inspections	Ratings

Statements	Standards/AQLs	Inspections	Ratings
3.5 The Contractor shall conduct development of and research on applications for high power microwave, millimeter wave, and Terahertz sources. <u>Deliverables:</u> A001 Monthly Progress and Status Report A004 Contract Summary Technical Report	**a)** Timely **AQL:** 5 days after last day of month in which work was accomplished **b)** Comprehensive **AQL:** Addresses key issues associated with modeling and operating high power microwave, millimeter-wave, and terahertz sources and applications, **c)** Timely **AQL:** 60 days after the end of an annual period of performance. **d)** Comprehensive **AQL:** Include: hours expended on tasks, resources assigned to tasks, meeting/reviews attended, problems or issues encountered	**What:** Monthly Progress and Status Report **How:** Review Monthly Progress and Status Report. Assess accuracy of reported hours of support and sub-tasks assigned. Assess timeliness and adequacy of contractor supplied resources to success of research efforts. Assess contractor participation in project reviews and scientific meetings/seminars if assigned. Review problems and issues and take action accordingly. Report delivered monthly. **Who:** COR PI **Standard(s):** a, b - - - - - - - **What:** Contract Summary Technical Report **How:** Review contents of annual Contract Summary Technical Report for completeness. **Who:** COR PI **Standard(s):** b, c	
3.5.1 The Contractor shall design and operate experiments for microwave and millimeter wave processing of ceramics and other materials.	**a)** Timely **AQL:** 30 days after completion of a specific experiment **b)** Comprehensive **AQL:** Addresses key issues and findings associated with designing	**What:** Technical report detailing issues and findings in the design and operation of a specific experiment. **How:** Evaluate technical content of report provided after completion of	

Statements	Standards/AQLs	Inspections	Ratings
Deliverables: A002 Studies Final Report	and conducting a specific experiment.	a specific experiment. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.5.2 The Contractor shall conduct experimental research on simulation model code design, model execution, and interpretation of experimental data for microwave and millimeter wave material processing experiments. Deliverables: A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of a specific data collection effort. **b)** Comprehensive **AQL:** Addresses key findings associated with an assessment of a specific set of data..	**What:** Report on acquisition and analysis of data for specific experiments. **How:** Evaluate technical content of report provided after completion of specific experiments.. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.5.3 The Contractor shall provide recommendations on and conduct research into potential material processing applications and other applications for microwave, millimeter wave, and magnicon sources. Deliverables: A002 Studies Final Report	**a)** Timely **AQL:** 30 days after completion of a specific evaluation **b)** Comprehensive **AQL:** Addresses key issues of proposed, potential applications for millimeter wave and magnicon sources.	**What:** Technical report on potential material processing or other applications for millimeter wave or magnicon sources. **How:** Evaluate timeliness and content of the technical report. **Who:** COR PI **Standard(s):** Inspection applies to all standards	

Statements	Standards/AQLs	Inspections	Ratings
3.6 The Contractor shall perform engineering support for NRL laser and microwave facilities.			
3.6.1 The Contractor shall set-up, operate, run maintenance diagnostics routines, and perform routine maintenance of current NRL Laser and Microwave GFE for conduct of assigned experiments. <u>Deliverables:</u> A001 Monthly Progress and Status Report	**a)** Timely **AQL:** Tasks are completed in accordance with a monthly schedule provided by NRL. **b)** Responsive **AQL:** Requisite personnel provided in accordance with a monthly schedule provided by NRL. **c)** Effective **AQL:** Contractor personnel require no training to perform tasks assigned	**What:** Monthly Progress and Status Report **How:** Review monthly status report and assess quality of efforts provided and any issues encountered in performing this task. **Who:** COR PI **Standard(s):** Inspection applies to all standards	
3.6.2 The Contractor shall participate in planning, installation, and testing of proposed upgrades for NRL laser and microwave GFE when requested by the Government. <u>Deliverables:</u> A001 Monthly Progress and Status Report A004 Contract Summary Technical Report	**a)** Timely **AQL:** 5 days after last day of month in which work was accomplished **b)** Responsive **AQL:** Provide resources within 5 days of request for new task In accordance with NRL schedule for continuing task lasting over a month **c)** Timely **AQL:** 60 days after the end of an annual period of performance. **d)** Comprehensive **AQL:** Addresses key issues associated with laser and microwave facilities upgrade support. Covers minor short term upgrades for existing facilities and long term proposed new major facilities upgrades	**What:** Monthly Progress and Status Report **How:** Review monthly status report and assess quality of efforts provided and issues encountered in performing of this task. **Who:** COR **Standard(s):** a, b - - - - - - - **What:** Annual Contractor Summary Technical Report **How:** Review annual report. **Who:** COR **Standard(s):** c, d	